

HOT WINDS AT TAMPICO, MEXICO, APRIL 6 AND 7, 1919.

By S. A. GROGAN.

[Dated: Mexican Gulf Oil Co., Tampico, Mexico, Apr. 15, 1919.]

On April 6, 1919, we had a hot, dry southwest wind from 11 a. m. to 3 p. m. (Tampico time) with a maximum temperature, 93.5° F., the highest since June 19, 1918. On April 7, from 11 a. m. to 1:15 p. m., the hot wind blew again, with a maximum temperature of 99° F. at 1:15 p. m., when the wind changed to SE., and there was a drop of 16° in five minutes. This maximum temperature is the highest on our record, which dates from October 12, 1917. Figure 1 shows tracings from the thermograph record, corrected to the thermometer readings, and from the barograph here, April 5 to 9, 1919. Table 1 gives in detail the observations made on April 7.

TABLE 1.—Weather Observations, Tampico, Mexico, April 7, 1919.

Observation of—	Tampico time.		
	6.30 a. m.	12.15 p. m.	6.30 p. m.
Dry thermometer	71.5° F.	96° F.	77° F.
Wet thermometer	69.5° F.	67.5° F.	72° F.
Dewpoint	68° F.	49.5° F.	70.5° F.
Relative humidity	30 per cent.	21 per cent.	79 per cent.
Vapor pressure	0.684 inch.	0.353 inch.	0.732 inch.
Barometer	29.71 inches.	29.71 inches.	29.69 inches.
State of weather	clear	clear	cloudy.
Wind blowing from	S.	SW.	SE.

the opinion that the warmth and dryness of the wind could not have been caused by having blown over hot and dry land. The Sierra Madre mountains [eastern escarpment of the plateau] are 60 miles west of Tampico.

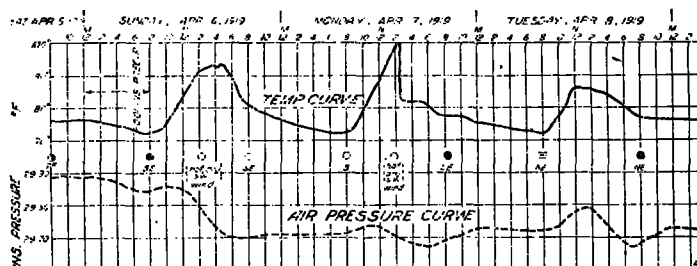


FIG. 1.—Weather at Tampico, Mexico, Apr. 5-9, 1919.

DISCUSSION.

In view of the large low-pressure area centered not far north at this time, it is possible that the wind which reached Tampico so hot and dry had been robbed of much of its moisture on passing up the west flank of the Mexican plateau, and then had been heated chiefly by compression on its eastward descent. The conditions observed at Tampico could have resulted if air nearly saturated at 50° F. had descended the 7,000 feet from the plateau to Tampico. In addition to the 37° F. rise in temperature which would have resulted from compression alone, it probably would have warmed 10° F. in passing over 60 or more miles of coastal plain during the morning. The fact that the three occurrences mentioned took place only during the middle of the day would seem to indicate that at other times, if there is a forced descent of air from the plateau, such heated air can not penetrate to the surface. The convectional mixing of the lower air strata, coupled with the diurnal warming of the air en route, seem to be necessary to make such foehn winds felt on the Gulf coast.—C. F. Brooks.

TORNADOES IN EASTERN NEBRASKA, APRIL 6, 1919.

By G. A. LOVELAND, Meteorologist.

[Dated: Weather Bureau, Lincoln, Nebr., May 22, 1919.]

An area of low pressure of unusual energy, 29.2 inches, was central in southwestern Nebraska or eastern Colorado on Sunday, April 6. (See fig. 1.) In the evening, three tornadoes occurred in eastern Nebraska. One of these was near Elmwood (25 miles SW. of Omaha) at 6 p. m. (90th meridian time). A second, near Madison (90 miles NNW. of Omaha) at 6:30 p. m. damaged 6 farms. A third occurred at Omaha at 7:30 p. m., and is said to have damaged 400 houses and caused a loss of a quarter of a million dollars.

The tornado near Elmwood was observed by a number of people, and the accompanying unusually good photographs (figs. 2 to 7) were made of it. The path of the tornado was narrow, most of the distance less than 300 feet in diameter, and it lay in a general direction a little west of north. At the same time, however, the upper portion of the funnel where it joined the general cloud base was moving toward a point a little east of north. The funnel increased in length, and finally an apparent

loop, due to perspective, developed. This loop shows somewhat in figures 2, 6, and 7. The funnel dissolved, but the dust cloud or lower portion of the funnel continued for a few seconds after the upper part had disappeared, and moved with devastating force for about three-fourths of a mile. The whole length of the tornado path was only about 7 miles, and the tornado made it in about 10 minutes. No lives were lost, but several farm houses were destroyed and others injured. Further details are given in the following extracts from observers' accounts.

Mr. W. A. Wood, of Weepingwater, Nebr., who took the photographs, figures 3 to 7, gives the following description of the local weather, and the appearance of the funnel cloud:

"Upon the day of the Elmwood tornado, I observed that there was every indication of rain, as the sky was entirely overcast with clouds and the weather was quite humid. About noon, however, the sky began to clear,